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ABSTRACT

A study in South Wales developed the insights provided by previous research into further education and job training by exploring the ways in which the determinants of participation in lifetime learning vary systematically over time and from locality to locality. In addition, the study looked at empirical patterns of participation in lifetime learning through the concept of "trajectories." Data were gathered through a questionnaire survey and semi-structured interviews with 1,104 families in South Wales, as well as through examination of educational information from the institutions in the area. The study found these five lifelong learning trajectories: non-participant, transitional, delayed, lifetime, and immature. The full model of lifetime learning trajectories includes more than 40 independent variables that can be summarized in these five broad factors: time, place, gender, family, and initial schooling. The study found that the pattern of trajectories has changed over time, with lifelong learning and transitional learning increasing and apprenticeship decreasing. In addition, findings indicated that early success or failure at school lays the foundation for learner identity and participation in further education. The study concluded that additional research is needed to improve understanding of the processes of lifetime learning and motivation. (Contains 20 references.) (KC)

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LEARNING TRAJECTORIES: ANALYSING THE DETERMINANTS OF WORKPLACE LEARNING

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Introduction

The development of an adequate social theory of the determinants of lifetime learning is a necessary condition of creating a 'learning society', however conceived. Rather than beginning with normative questions about what a 'learning society' *ought* to constitute, the principal concerns here are with what the patterns of participation through the life-course actually *are* and how best to understand their determinants. This is important not only to strengthen the social science of this field, but also to provide a proper basis for the formulation of policy (cf. Coffield, 1997a).

Previous analysis in this field has tended to isolate individuals from the social and economic contexts in which participation in learning takes place. In particular, a dominant interpretation of the determinants of participation has been in terms of the individual's calculation of the net economic benefits to be derived from education and training, as proposed within human capital theory (for example, Becker, 1975). Certainly, the rather crude version of human capital theory which has underpinned policy (in the UK and elsewhere) has involved an unwarranted abstraction of these narrowly conceived economic processes from the wider social system (Coffield, 1997b). In reality, individual behaviour in economic markets of any kind is embedded in social relations which are shaped by social norms, interpersonal relationships, family and community structures and so forth (Fevre, Rees and Gorard, 1999a forthcoming).

Where wider social considerations *have* been taken into account, this has been restricted to a straightforward description of the 'barriers' which prevent people from participating in education and training. These include 'situational' factors, such as finance and lack of time because of other commitments, as well as the features of educational institutions which make them unresponsive to potential learners. It is recognised, moreover, that the impact of such 'barriers' on different social groups varies widely according to their circumstances, thereby giving rise to systematic variations in patterns of participation (McGivney, 1990). Although some of this work provides a valuable picture of participation patterns, it remains under-theorised; and ignores the insights provided by the sociology of education more generally, which has

also emphasised the constraints on access to educational opportunities experienced by different social groups (Rees *et al.*, 1997). More importantly, questions of individual motivation - which predominate in human capital theory - are under-explored here; and have been confined to those who *do* take part in education and training of some kind (Maguire, Maguire and Felstead, 1993).

The study reported here develops the insights provided by previous research in a number of ways. Firstly, *contra* human capital theory, it explores the ways in which the determinants of participation in lifetime learning vary systematically over time and from locality to locality (Rees *et al.*, 1997). The temporal and spatial variations in empirical patterns of participation have been widely acknowledged. However, their analytical implications have been less fully explored. Understanding why these patterns take the form which they do requires an analysis of the shifts which have taken place in the structure of learning opportunities available in given areas (through, for example, changes in educational provision or labour market conditions), as well as how access to these opportunities is constrained by the social and cultural resources which different social groups command. Moreover, the relationships between these kinds of structural conditions and actual participation are further mediated not only by the knowledge which is socially available about learning opportunities, but also by the beliefs and attitudes which are held in respect of them (Fevre, Rees and Gorard, 1999a forthcoming). Previous research suggests that the latter 'learner identities' also vary systematically over time and spatially, reflecting complex patterns of individual, family, community and wider determinations (Rees *et al.*, 1997).

Secondly, the present study explores empirical patterns of participation in lifetime learning through the concept of 'trajectories'. At one level, what is involved here is the attempt to describe characteristic sequences of learning episodes through the life-course by aggregating individual experiences into a set of typologies (cf. Banks *et al.*, 1992). However, there is a clear analytical element too. Hence, the 'trajectory' which people join is largely determined by the resources which they derive from their social background. Moreover, an individual's capacity to take up whatever learning opportunities are available is constrained by his or her previous history in this respect.

However, 'trajectories' do not simply reflect the constraining effects of structured access to learning opportunities. The individual educational experiences of which they are comprised are simultaneously the products of personal choices, which themselves reflect 'learner identities'. What is central to an adequate analysis, therefore, is to produce an account of the *interaction* of 'learner identities' and the individual choices to which they give rise, with wider structural parameters (Rees *et al.*, 1997).

Aims of the Study

The principal aim of this study, therefore, is to develop a better understanding of the determinants of participation and non-participation in lifetime learning. For the theoretical reasons already sketched, this involves a close analysis of changes in the trajectories of participation over time; as well as the detailed consideration of the impacts of regionally and locally specific patterns of social and economic development. Time and place have come to be recognised as crucial elements in social analysis more widely, but have not previously been systematically integrated into studies of post-school participation in education and training. It is intended, moreover, that this analysis should contribute to the development of policies which will enhance participation in education and training, especially amongst those social groups which are currently under-represented.

More specifically, the study's objectives can be summarised in terms of a series of research questions. These are:

(i) How have patterns of participation and non-participation in post-compulsory education and training in industrial South Wales changed over time?

(ii) In what ways have these patterns been influenced by the radical changes in the social and economic structure of localities in industrial South Wales?

(iii) What are the inter-relationships between patterns of participation and non-participation and family structures and backgrounds?

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(iv)In what ways have patterns of participation and non-participation in post-compulsory education and training been influenced by individual social attributes and motivations?

(v) In what ways have participation and non-participation been influenced by changes in the infrastructure of educational provision?

Research Strategy

The study is based on an extended examination of *one* of Britain's most important industrial regions, South Wales. There are three principal methods of data collection. These are: (i) a questionnaire survey; (ii) semi-structured interviews; and (iii) archival analysis. In addition, the regional context, as well as conditions in the three local study areas (see below), are investigated through documentary analysis and semi-structured interviews with key respondents (Gorard, 1997; Chambers *et al.*, 1998). The three principal sources are discussed in turn (see also Gorard *et al.*, 1997).

Questionnaire survey

The sample for the questionnaire survey was drawn from three localities (Blaenau Gwent, Bridgend and Neath-Port Talbot) chosen to reflect the diversity of social and economic conditions in industrial South Wales. Within each site, sampling was focused on three electoral divisions, again selected to represent local conditions. Household lists were identified from electoral registers and an initial sample of some 880 respondents (one from each household) was derived by means of repeated systematic sampling. This sample was stratified so that respondents are divided equally between men and women; and span the age-range 35 to 64 years old evenly. A booster sample of around 220 respondents was drawn from the children of members of the initial sample, to allow detailed exploration of family relationships. This sample was also divided equally between men and women and covers the age-range 15 to 34 years old evenly. The questionnaire survey was administered by a private fieldwork company. The primary response rate was 74 per cent and this was supplemented by substitution. 1104 usable questionnaires were completed.

The questionnaire is designed to collect data of four principal kinds: the social/demographic characteristics of individual respondents; detailed histories of respondents' post-compulsory educational and training careers; simplified histories of respondents' employment careers; and simplified histories of the educational and training careers of respondents' partners, children, parents and siblings. Information on individual histories is collected on a modified 'sequential start-to-finish date-of-event basis' (Gallie, 1994, p.340). Whilst careful pre-piloting and a pilot study provided the basis for question design, there remain problems with this approach arising from the fallibility of respondents' recall. However, the alternatives of longitudinal panel designs and cross-sectional designs also face major problems.

Following extensive preliminary analysis, there are two major elements in analysing the data derived from the questionnaire survey. Firstly, the complexity of the 1104 individual education and training histories was reduced by converting each one into a sequence of episodes (an educational programme, new job, etc.) in which participation in education and training did or did not occur. These sequences, in turn, can be classified into 11 'lifetime learning trajectories', which describe almost all of the variations in individual histories. For most analyses, these can be further grouped into only five types of 'lifetime learning trajectories'.

Secondly, logistic regression analysis permits the identification of those characteristics of individuals (independent variables) which provide good predictions of which 'lifetime learning trajectories' they follow (dependent variable). This method of analysis is especially fruitful, as independent variables may be added into the regression function in the order in which they occur in real life: that is, the statistical procedure models exactly the social phenomenon it is analysing ('trajectories') (Gorard *et al.*, 1998a). We believe that this innovative method of analysis constitutes a significant advance over previous approaches in this field.

Semi-structured interviews

A 10 per cent sub-sample, representing the characteristics of the main sample, provided the basis for 105 extended, semi-structured interviews. These interviews again focus on

the respondent's recollections of how his or her education and training career unfolded. However, here it is the ways in which this is understood by respondents which provide the focus. Although respondents were encouraged to speak freely on these issues, interviewers followed an *aide memoire* to direct the discussion to a predetermined analytical agenda. The data thus generated comprise continuous texts produced by the tape transcription. Following editing, the texts of the interviews were prepared and entered for analysis, using the NUD.IST software package.

Archival analysis

The full historical range of the study is made possible by the analysis of materials held in the South Wales Coalfield Archive. The tape transcripts of oral history interviews held in the Archive, although carried out originally with different objectives in mind, provide a primary source of data on the nature and determinants of participation in education and training during the first half of the twentieth century. (See Appendix I of Burge, Francis and Trotman, 1999.)

More generally, we believe that the methodological strategy of an in-depth analysis of a *single* region has been justified. It makes practicable the use of a variety of data sources, both contemporary and historical. Using South Wales as a 'social laboratory' to chart long-term historical patterns, moreover, permits the uncovering of fundamental relationships and processes in the determination of participation in lifetime learning which provide - at a minimum - the starting point for studies elsewhere. In short, therefore, the implications of this study are not confined to the specific regional context in which the empirical research was carried out.

Results

We summarise some of the principal results of the study in terms of the conceptual framework outlined earlier. Our emphasis here, however, is on empirical findings rather than further discussion of theoretical contributions made by the study.

Patterns of 'Lifetime Learning Trajectories'

As we saw earlier, the 1104 education and training histories derived from the questionnaire survey can be aggregated into a typology of 11 'lifetime learning trajectories' which encompasses almost all of the individual variations. This may be further aggregated into a five-fold typology (which does not distinguish between the sources of the education and training); and it is the latter which is used here. Table I summarises the frequencies of the five 'trajectories'.

Table I: Frequencies of the 'Lifetime Learning Trajectories'

'Trajectory'	*Frequency*	*Percentage*
Non-participant	339	31
Transitional	222	20
Delayed	144	13
Lifetime	353	32
Immature	42	4

The 'immature trajectory' describes the small number of respondents who have yet to leave full-time education (and they are not used in the analyses below). The non-participants are those who reported no extension of their education immediately after ending compulsory schooling, no continuing education in adult life, no participation in government training schemes and no substantive work-based training. The transitional learners reported only the continuation of full-time education or a period of initial work-based training immediately after completing compulsory schooling. Those on the 'delayed trajectory' have a gap in participation between their leaving school and reaching at least 21 years of age, but followed by a minimum of one substantive episode of education or training. The lifetime learners reported both transitional participation and later episodes of education and training as well.

Whilst the nature of these later episodes of lifetime learning varied widely, it is significant that this 'lifetime trajectory' accounts for almost a third of respondents,

neatly balancing the 'non-participants'. For a substantial minority of respondents, their experience of lifetime learning ended with initial schooling. Although this needs to be qualified in light of the evidence from the semi-structured interviews (see below), it nevertheless confirms previous accounts of the size of the task confronting policy-makers seeking to promote lifetime learning.

Modelling the Determinants of the 'Lifetime Learning Trajectories'

To begin to explain this pattern of participation in lifetime learning, logistic regression analysis can be used to identify those characteristics of respondents which enable good predictions of which 'trajectory' they follow (Gorard *et al.*, 1998a). For example, a respondent who is a 50-year-old woman, born and still living in Neath-Port Talbot; whose father was unqualified and in an intermediate-class occupation and whose mother was unwaged; whose family religion was Anglican; who attended secondary modern school and left with no qualifications; who herself has an intermediate-class occupation; and who does not have a hobby requiring study or practice, has only a 16 per cent predicted probability of being a 'lifetime learner'. This is confirmed by her survey responses which report no education or training since leaving school.

The full model includes over 40 independent variables which have a (statistically) significant impact, but the sense of these can be summarised in terms of five broad factors.

(a) *Time* When respondents were born determines their relationship to changing opportunities for learning and social expectations. It is significant that respondents with similar social backgrounds from different birth cohorts exhibit different tendencies to participate in education and training.

(b) *Place* Where respondents are born and brought up shapes their access to specifically local opportunities to participate and social expectations. Those who have lived in the most economically disadvantaged areas (such as Blaenau Gwent) are least likely to participate in lifetime learning. However, those who have moved between regions are even more likely to participate than those living in the more advantaged localities.

(c) *Gender* Men consistently report more formal learning than women. Although the situation is changing (see below), these changes are different for each gender. Women are still less likely to participate in lifetime learning, but are now more likely to be 'transitional learners'.

(d) *Family* Parents' social class, educational experience and family religion are perhaps the most important determinants of participation in lifetime learning. Family background is influential in a number of ways, most obviously in material terms, but also in terms of what are understood to be the 'natural' forms of participation (as is indicated by the importance of family religion).

(e) *Initial Schooling* Experience of initial schooling is crucial in shaping long-term orientations towards learning; and in providing qualifications necessary to access many forms of further and higher education, as well as continuing education and training later in life (although see below). There are important 'age effects' here, however, relating especially to the reorganisation of secondary schooling in the maintained sector.

It is important to note that all of these factors reflect characteristics of respondents which are determined relatively early during the life-course. This can be expressed more formally, as the variables were entered into the logistic regression function in the order in which they occur in real life. Hence, those characteristics which are set very early in an individual's life, such as age, gender and family background, predict later 'lifetime learning trajectories' with 75 per cent accuracy. Adding the variables representing initial schooling increases the accuracy of prediction to 86 per cent. And this rises to 89 per cent and 90 per cent respectively, as the variables associated with adult life and with respondents' present circumstances are included.

The analytical implications of this are profound. It provides strong empirical support for the utility of the concept of 'trajectory' in analysing participation in lifetime learning. Not only is there a clear pattern of typical 'trajectories' which effectively encapsulates the complexity of individual education and training biographies, but also which 'trajectory' an individual takes can be accurately predicted on the basis of

characteristics which are known by the time an individual reaches school-leaving age. This does not imply, of course, that people do not have choices, or that life crises have little impact, but rather that, to a large extent, these choices and crises occur within a framework of opportunities, influences and social expectations that are determined independently. At this level of analysis, it is the latter which appear most influential.

These results also have important implications for policy development. Hence, non-participation is largely a product of the fact that individuals do not see education and training as appropriate for them and these views, in turn, are structured by factors which occur relatively early in life. This suggests that policies which simply make it easier for people to participate in the kinds of education and training which are already available (for example, removing 'barriers' to participation, such as costs, time and lack of child-care) will have only limited impacts.

These conclusions, however, should be qualified in the light of more detailed modelling of the determinants of 'lifetime learning trajectories'. Hence, where the logistic regression function is constructed to distinguish between those forms of participation which occur immediately after compulsory schooling and those which occur later in life, different factors are highlighted (Gorard *et al.*, 1998b). It is possible to predict the former much more accurately than the latter on the basis of those characteristics of respondents which are set by the end of initial schooling (age, place of birth and gender are most significant; along with regular attendance at school and sitting - although not necessarily passing - school-leaving qualifications). For later participation, whilst some of the determinants are the same, their *relevance* is not. For example, those with no qualifications are more likely to return to learning later in life than those who do not achieve the 'benchmark' of five GCSEs; the opposite of the situation with respect to participation immediately after school. Moreover, many of the determinants of later participation are different and reflect the changing circumstances of adult life in terms of family relationships, access to learning opportunities through employment and so on.

These results offer important correctives to the conventional view of participation in lifetime learning, summarised by Tuckett (1997) as 'if at first you don't succeed, you

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don't succeed'. They also raise the crucial policy issue of where scarce resources for education and training should be directed, especially given the focus up until now on 'front-loading' investment into initial schooling. Whilst the evidence should be treated with caution, it does indicate that shifting this balance in favour of policies addressed to the determinants of later participation would be more efficient and cost-effective.

Changes Over Time in 'Lifetime Learning Trajectories'

There is also considerable evidence that the pattern of typical 'trajectories' has changed very substantially over time. The archival research, for example, shows that, during the early decades of the century in South Wales, the dominant forms of formal, post-school learning were employment-based and largely restricted to men. Within coalmining, the pervasive method of acquiring knowledge and skills was through working under the tutelage of an experienced worker, usually an older family member. This came to be supplemented by organised evening classes, which enabled individuals to acquire the technical qualifications which became necessary for career advancement in the industry (and which were consolidated during the period after nationalisation in 1947). However, with the intensification of conflict between miners and owners during the inter-war years, the nature of participation was transformed through the rise of 'workers' education', aimed at raising political awareness and feeding the labour movement with activists, a pattern which was not replicated even in other coalfield areas (Burge, Francis and Trotman, 1999).

Although the nature of the evidence is different, the pattern of 'trajectories' has also changed significantly during the period since the second world war. Disaggregating the total sample from the questionnaire survey into age cohorts allows a mapping of these changes. Hence, there has been a clear trend away from non-participation over the period since the oldest respondents left school. The proportion of each cohort reporting no formal learning has decreased (despite the greater number of years in which participation was possible for the older groups). However, the increase in post-school participation which this implies is reflected in some growth in the frequency of the 'lifetime trajectory', but is mainly accounted for by the substantial rise in the proportion of 'transitional learners', reflecting the investment in initial schooling noted earlier.

Moreover, when these changes are analysed separately for men and women, distinctive patterns emerge. *For men, the increase in post-school participation* took place chiefly for those completing initial education during the 1950s and 1960s; whilst for women, it occurred a decade later, for those finishing school during the 1970s and 1980s. The increase in participation for men is attributable to the growth of 'lifetime learners', although only up until the 1980s. For women, in contrast, it is the result of more 'transitional learners'. Hence, gender remains a significant determinant of participation in lifetime learning, even where it has been eliminated as a determinant of extended initial education.

Again, there are interesting implications here. These patterns of change raise questions about conceptualisations of the 'learning society' exclusively as a desirable future state, yet to be achieved (as is most commonly the case in contemporary discussions). They discount the possibility that elements of past practice in education and training were superior to the present; or that the development over time of participation in learning may be distinctly non-linear, especially for particular population groups. Certainly, for those men who left school in South Wales during the 1950s and 1960s - a period of full employment, relative affluence and settled welfare state provision - their situation with respect to lifetime learning was significantly better not only than that of their female contemporaries, but also than that of those who have left school during the marketised 1980s and 1990s (Rees, 1997).

'Learner Identities'

When the focus of analysis shifts to individuals' own accounts of their experiences of education and training after school (derived from the semi-structured interviews), it is not surprising that it is their very diversity which is initially most striking. Necessarily, respondents tend to emphasise the specificities of their learning histories, the particular family circumstances or labour market shifts to which they had to react and so on. Methodologically, therefore, it is difficult to present a succinct summary. Certainly, there are no *simple* patterns in these individual accounts, even amongst those who follow the same 'trajectory'.

This complexity is at least consistent with the theoretical framework which was sketched earlier, where the *choices* made by individuals over participation in learning is a key element. Equally, however, for the respondents themselves, any choices which were made are perceived to have been heavily constrained by external circumstances. Perhaps most obviously, many older women describe the ways in which the learning opportunities available to them were limited by local employment, social expectations as to what was appropriate or by a 'forced altruism' with respect to family commitments (themes which are reproduced for earlier periods in the archival analysis). Even some of the younger women respondents provide similar accounts, confirming the points made earlier about the very partial nature of changes in women's 'trajectories' over time (Gorard *et al.*, 1998c). Moreover, for a number of those - women and men - who *had* participated actively in post-school learning (albeit mainly in the form of conventional further and higher education), this is seen as a product of what was normatively prescribed within the family or, less frequently, the wider community, rather than their own active choice (Gorard, Rees and Fevre, 1998). Certainly, it is clear that, to make sense of individuals' learning histories, it is necessary to understand the ways in which learning opportunities were understood when decisions over participation were being made. Moreover, there is strong evidence that these 'social constructions' of opportunities, in turn, are shaped by a range of contextual influences.

One of the clearest exemplifications of the latter relates to the impacts of the experience of compulsory schooling. 'Success' or 'failure' at school lays the foundation for what appears to be an enduring 'learner identity'. It is striking, for example, how numerous respondents who had experienced the 11-plus examination testified to its major and often traumatic effects. For respondents too young to have gone through the tripartite system, although 'success' and 'failure' are less starkly defined, it remains the case that they identify positive experiences of schooling as crucial determinants of enduring attitudes towards subsequent learning. For many individuals, then, the significance attached to 'doing well' at school within families and even the wider community has long-term consequences. In particular, whilst 'passing' the 11-plus is certainly not a sufficient condition for becoming a 'lifetime learner', a number of respondents do

attribute their post-school education and training to the influences of their adolescent experiences of the traditional grammar school, especially in the wider context of the South Wales coalfield, where the conventional non-conformist emphasis upon the intrinsic value of education continued to be influential (Gorard, Rees and Fevre, 1998).

In contrast, those who 'failed' at school often come to see post-school learning of all kinds as irrelevant to their needs and capacities. Hence, not only is participation in further, higher and continuing education not perceived to be a realistic possibility, but also work-based learning is viewed as unnecessary. There is thus a marked tendency to devalue formal training and to attribute effective performance in a job to 'common-sense' and experience. Whilst this is certainly not confined to those whose school careers were less 'successful' in conventional terms, it is a view almost universally held amongst this group of respondents.

In reality, of course, it is difficult to interpret the implications of these findings. Reluctance to acknowledge a significant role for formal training may not impair an individual's ability to do a job, especially where the requirements are minimal. Conversely, there is considerable evidence from the semi-structured interviews that many people are able to acquire substantial knowledge and skills - both inside and outside of employment - without formal training. And this, in turn, provides strong support for the growing acknowledgement amongst policy-makers of the significance of informal learning in the workplace, the family and community settings. However, the divergence between the way in which work-place training is viewed by many respondents here and that embodied in policy is a cause for concern. Certainly, this divergence appears to have been almost unaffected by the introduction of competence-based National Vocational Qualifications, as well as the other initiatives by government and firms to raise the profile of training (Fevre, Gorard and Rees, 1999b forthcoming).

Future Research Priorities

Further analysis of the data from the semi-structured interviews remains to be completed. Of particular interest here will be the more detailed examination of the transcripts of those individuals whose actual 'trajectories' diverge from those predicted

on the basis of the respondent characteristics prioritised in the logistic regression function. Whilst preliminary investigation indicates that here too there are no simple patterns, the potential contribution of this analysis to policy development may be considerable. In theoretical terms, too, this analysis will, in our view, cast light on the vexed question of the interactions between structure and agency in the determination of participation/non-participation.

This study has also emphasised the complexities associated with work-place learning, especially with regard to differing views of its role. Detailed studies, preferably based upon direct observation, would immeasurably improve understanding of the processes involved here. More immediately, the construction of 'learning trajectories' which separate out work-based learning from other types of participation is a fruitful avenue of investigation. In particular, it is important to know whether the pattern of determinants for such trajectories differs significantly from that of the more general trajectories which have up until now been the focus of investigation.

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